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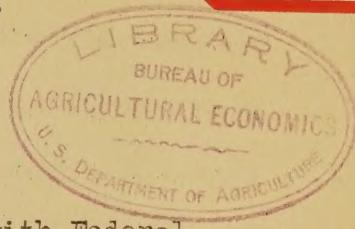
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ORGANIZATION OF A PROGRAM OF RESEARCH 1/

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With research in home economics now under way with Federal support in all but four of our 48 states and in Hawaii, it might seem at first thought rather unnecessary to discuss in this group the organization of a program of research. On second thought it is a most opportune time for such a discussion, with emphasis upon the word program. Although Federal support for research had long been sought by this group, it came rather suddenly at the end and the immediate problem confronting those of you who were given the responsibility of inaugurating research was to set up one or more projects as rapidly as possible in order to receive a share in the Purnell funds when first available. This was particularly true in those divisions which carried no graduate courses and had not even the foundation material for research which is to be found in research problems for the master's degree.

Now five years have elapsed since the passage of the Purnell Act and the funds available for research under this act have reached their maximum, with no further expansion possible except by robbing Peter to pay Paul through transferring funds from one department to another. For further expansion in research, the home economics departments or divisions as well as the various divisions in the state experiment stations must look elsewhere for support. The first and most logical source of support is state appropriations and it is largely through such means that many of

1/ Presented before the Home Economics Section of the Association of Land-Grant Colleges and Universities, at the Washington meeting, Nov. 19, 1930.

our best agricultural research projects are financed. I do not know how such appropriations are secured in all states, although I am under the impression that in most cases it is through the medium of the experiment station directors. I am also under the impression that state legislatures are not particularly interested in research in the abstract, but that their interest may be aroused collectively or individually through the presentation of a research program with a definite purpose and consisting of clearly outlined concrete projects. A year or two ago one of the experiment station directors most liberal in his support of home economics research said that he hoped at the next biennial session of the state legislature to be able to present a research program in home economics sufficiently convincing to secure generous state appropriations. Another station director has recently asked the woman in charge of home economics research at the station to prepare a suggestive ten-year program of research, allowing for expansion in subject matter and in funds. At still another Land-Grant college the head of each department in the home economics division was asked not long ago to prepare an outline of a research program in her particular field. All of these signs of the times indicate that the organization of a long time research program, if not already effected, is the next step to take in the expansion of home economics research.

Since this is a meeting of administrative heads of the home economics departments and divisions of the Land-Grant Colleges and Universities, I am assuming that the question of organization of a program of research should be considered in connection with the existing program of teaching, that no matter how interested you are in the development and expansion of

research it can not be considered apart from the rest of your program of work. This leaves out of immediate consideration those states in which Federally supported home economics research, while conducted in the same place and perhaps under the same roof as the resident teaching, is not in any way under the administrative control of the head of the home economics department or division and also those in which home economics research departments have been set up in the experiment stations themselves and are not even in the same place as the departments of resident teaching.

As far as the administrative problems of organizing a program of research are concerned, I would further separate the home economics divisions whose administrative heads are responsible for organizing the research program within their division into two groups--one consisting of those divisions offering no graduate courses and the other of those giving graduate work leading at least to the master's degree. Those of you who belong to the former group are at once relieved of the responsibility of attempting to make your research program serve the purpose of furnishing research problems to graduate students. As far as quality and even quantity of research are concerned, this is often an asset, for your research staff will not be hampered by having to spend a considerable portion of their time directing student problems, or breaking in one student after another as a research assistant for their own projects. There comes to mind an instance of a very worthwhile Purnell project which is making very little progress, as most of the time the leader can spend upon it is devoted each year to teaching a new graduate student, who has selected some phase of the project as her thesis subject, the very delicate technique involved in the determinations required.

The employment of a full time technician would result in a marked speeding up of the project, with possibly more trustworthy findings.

With no graduate students to plan for, two possibilities for carrying on research are open. One is to release the most research-minded of your teaching staff from at least two-thirds of their teaching program and allow them to devote the time thus gained to research. This involves an enlargement of staff but no sharp differentiation between teaching and research. The other is to have entirely separate teaching and research staffs. Both plans are in operation and each has its advantages and disadvantages, as most of you have doubtless found out in the past five years. If there is no one on the teaching staff who is fitted by natural inclination and training to carry on research--and it does not necessarily follow that every good teacher is a good researcher--the first plan is obviously out of the question except as new members of the teaching staff are selected with research qualifications in mind. If your good teachers are also good researchers, there is a tendency to so overload their program that research suffers. Unless teaching is given the minor and research the major part of the staff members' program, sooner or later the teaching is bound to encroach upon the research, or if not teaching, various administrative problems, committee work, and the like. A bona fide research worker on the other hand is by tradition a person set apart from the many distractions of the teaching staff. It is well, however, for the researcher to make some contacts with teaching and for the students to derive some benefit from her special knowledge in her chosen field. I believe that the most satisfactory arrangement is to have separate teaching and research staffs as far as primary functions and responsibilities are concerned, but to have each

member of the research staff give an occasional course. The time of the researcher should be protected still further by the employment of full or part time assistants--technicians, statistical assistants, or whatever type of help will best relieve the research leader from the mechanical details of her project.

In home economics divisions offering graduate work, it is inevitable that the research program be planned partly to serve in the training of graduate students, but if a high quality of research is to be maintained it is well to face the fact that not all master's theses should be dignified by the name of research. A year or two ago Dr. T. H. Eaton of Cornell University, in a brief paper in Science 1/, brought out very clearly the distinction between these separate but allied functions of a university. Although he was speaking of training for the doctor's degree, most of his statements apply equally well to that first step toward the doctorate, a master's degree. Dr. Eaton first outlined three policies followed in different institutions in the research training given candidates for the Ph.D. degree: (1) The student is assigned a minor part in the research of his professor, (2) the student conducts an independent research project, receiving only criticism and advice from his professor, and (3) the student first assists in some staff research and then is assigned to independent research.

In Dr. Eaton's opinion the first policy safeguards the quality of research of a department or institution, but does not give the best training to the student. "He is trained only as a technical assistant, not as a researcher." Under the second policy of independent research, unless a

1/ Research and the training of the researcher. Science, 71, pp. 77-81 (1928).

clear differentiation is made between the research of the trained staff member and of the untrained graduate student the level of quality of the total research product of the university is lowered. The third or intermediate policy protects staff research, as does the first, but tends to raise considerably the quality of the student research by means of the preliminary technical training. In other words, the policy which results in the highest quality of research of the department and that which gives the best training to the student are not the same. In Dr. Eaton's words

"It appears then, that an organization of university function to the end of highest quality in research is not an organization best adapted to the production of the competent researcher. On the other hand, an organization to the end of competency in the researcher is not best adapted to the highest product in research. The functions of research and of training in research are coordinate, but they are not coincident."

Those of you who are in charge of large divisions are interested in both of these functions. In Dr. Eaton's opinion it is not necessary to make a choice, but only to recognize the distinction between them. Quoting his last paragraph,

"Let us have in one category research of the highest quality, performed by the experts in research--what I should like to call university research. In another let us have research of high quality, performed by initiates in research, undertaken by the university not for the sake of its value in contributing to the sum of known truth, but undertaken as a means to the development of competency in prospective researchers. This I have, without license, already called student research."

I imagine that some of the difficulties in securing channels of publication of research papers would disappear if there were a sifting of results of student research from those of university research and only the latter were offered for publication.

Granting that in a home economics division offering graduate study, re-

search and teaching are almost inevitably combined, it is nevertheless almost more important for the research staff here than in institutions not offering graduate work that the teaching schedule be light. It is not likely that the second policy outlined by Dr. Eaton of independent research on the part of the graduate student will be followed to any extent, but whether the graduate student serves only as a technician in a staff research project or receives a little preliminary training and then undertakes a project of her own, much attention from her staff director is necessary.

An excellent plan for the coordination of student and staff research, which is already being followed in one or two divisions, is to make the student research of an exploratory nature--the first steps, so to speak, in a real research project. This may be the trying out of several possible techniques or a qualitative study which will fix the limits of a more exact quantitative study. This often results in considerable saving in time and expense on the real project, while at the same time it gives the student the necessary training. This is probably better for both research and training the researcher than the first policy listed by Dr. Eaton of making the student a technician in staff research. To his objection to this policy from the student side I would add from the research side the inevitable setbacks in a research project resulting from repeated training of students as technicians.

I have spent considerable time in calling attention to the differences in administrative problems relating to research in the various home economics divisions, for these have to be taken into consideration in the development of a research program and indeed have figured largely in the progress already made in the different states. In several of the states, as mentioned earlier, there is still another provision for research in home

economics, namely, the separate research divisions which have been organized as regular experiment station divisions responsible only to the experiment station directors. Some of these are located on the same campus and perhaps under the same roof as the home economics teaching division and consequently may be assumed to be in close and friendly relations with the division, but sharing none of its responsibilities. Others are in experiment stations located apart from the state college or university. Here we have research unhampered by teaching, direction of student research, or extra-curricular activities. It would be interesting to sort out these different groups and by means of the present list of projects and published reports attempt to draw some conclusions as to the relative advantages and disadvantages of these different systems of administering and conducting home economics research. There are too many variables and unknown factors involved, however, to warrant such a comparison. There need be no distinction, however, between the different groups in planning for an ideal program of research. Fortunately a program does not have to be carried out in its entirety all at once and the same goal may be set for the small department giving no graduate work, the large division or college offering graduate work, and the independent division of rural home research of the experiment station, although it may be years before the small department can hope to have a diversified program.

An ideal program of research in home economics should include investigations in all of its subject matter groups--family relationships, family economics, the house, foods and nutrition, and textiles and clothing. As is stated in one of the committee reports of the White House Conference, "Home economics must cross section the various sciences in the solution of all its

problems." A convenient starting point in planning a comprehensive program of research cross sectioning the various sciences would be to take the list of subject matter divisions, with their subgroups, recommended by the Re-organization Committee of the American Home Economics Association and adopted tentatively by the association and go over the items one by one, noting where your present research projects fit into the general scheme, what others might well be included as particularly appropriate for your own local conditions and what should be regarded as inappropriate or impractical. Get your staff members to cooperate with you by planning a long time program in their own field and then weigh the merits of the different plans to determine their position in the general scheme with reference to the order in which they should be developed and the proportionate distribution of funds.

When it comes to weighing the relative merits of programs for different subject matter units, it is well to remember that a program may be developed by synthesis as well as by analysis and that in the biological sciences the synthetic method is perhaps the more common, while in the social or applied science the opposite is true. To illustrate-some of the most important discoveries in nutrition have come from the step by step advance of a single research project from the known to the unknown. The lines along which a given project may develop can not always be foreseen in advance. The invaluable contribution which Osborne and Mendel made to the vitamin concept came as an unforeseen development in a station project on the chemistry of the vegetable proteins. The hidden possibilities in every research project in this field make it exceedingly irksome and well-nigh impossible for a real researcher to set down in black and white more than the barest outline of a program of research. In the field of family economics on the other hand, it

is possible and customary to plan in advance most of the details of a comprehensive program. In fact there is danger in this field that the inexperienced researcher will attempt to carry out a whole program as a project.

There is little published material to which to refer concerning the actual planning of research programs. An excellent handbook on the general subject is Schluter's How to do Research Work ^{1/}. For clear directions for project writing I commend the 1927 report of the Committee on Experiment Station Organization and Policy ^{2/}. The reports of the Land-Grant committees on vitamin content of foods in relation to human nutrition and on rural home management studies and the skeleton outline of the joint project on rural family living offer suggestions along their particular lines. Dr. Stanley's annual reports as chief of the Bureau of Home Economics show the general scope of the research activities of the various divisions in the Bureau. Miss O'Brien has given an excellent outline in the Journal of Home Economics of the long time program behind the individual research projects in her division of clothing and textiles at the Bureau of Home Economics, emphasizing in it one point that in itself justifies the setting up of a program no matter how impossible it seems of execution, namely, that "if an organization is to obtain results and acquire a reputation for outstanding work, attention must be focussed upon definite goals and when requests come, as they do to every Government laboratory urging that new projects be undertaken, they must be granted or refused on the basis of the contribution to the program under way."

^{1/} W. C. Schluter. How To Do Research Work. New York. Prentice-Hall, 1926.

^{2/} Report of committee on experiment station organization and policy. Proc. Assoc. Land-Grant Colleges and Universities. 1927, pp.196-199.

It seems scarcely necessary to call the attention of this group to other papers which have appeared recently in the Journal of Home Economics on research programs and research needs in various fields--such as Hopkins' paper on The Function of Research in Public School Home Economics, with its suggestions for research in home economics education; the committee report on the application of electricity to domestic use; and Williams' paper on Home Accidents and Home Economics, as well as various papers and editorial comment on housing problems. With the inauguration of the new White House Conference on Home Building and Home Ownership we are going to hear much more about housing and any contribution that may be made in your own research will be very timely.

In the newer fields of research where almost nothing has been done it is particularly important to know what others contemplate undertaking in order that duplication may be avoided. Such conferences as the one on research in textiles and clothing held at Kansas State Agricultural College last spring are exceedingly helpful toward this end.

Most important of all at this time among the sources of inspiration for a research program is the coming White House Conference which is to offer a host of suggestions for an all round research program, with child health and protection as its unifying theme. During the last few days Miss Van Rensselaer has very kindly let me go through some of the reports to be presented with the view to locating definite suggestions for research. I was interested to find that many of our present Purnell projects are topics in which need for research is emphasized or implied. For instance, in the summary report of Committee 1-A, Growth and Development, under Section I, Medical Service, the appraisal of the individual child is emphasized as of

importance, with the necessity of finding proper standards for evaluating the nutritional status of the individual child which shall make allowance for race, heredity, skeletal proportions, etc. I immediately thought of the project on standards for growth of Texas school children--a project involving periodic measurements under carefully standardized conditions of a large number of school children in three race groups--white, negro, and Mexican. If similar studies on as extensive a scale could be carried out in many other sections of the country there would gradually become available sufficient data for the establishment of more satisfactory standards than those that are at present used rather indiscriminately.

Again, in the report of Committee 1-B, Prenatal and Maternal Care, the statement is made that there is great need of further study of the metabolism of women during the reproductive cycle. This brought to mind the fact that on the staff of one of our Land-Grant colleges is a young woman whose doctor's thesis was on this problem and who is consequently well fitted to conduct further studies along this line.

The need for further study of the underlying causes of dental caries reminded me of the improved dental condition already noted among children serving as subjects in a Purnell supplementary lunch project.

In Section II, Committee B on Communicable Diseases states that encouragement should be given to the improvement of housing and working conditions because of their relation to child health. What about the Indiana and Vermont and North Dakota projects on kitchen arrangement and equipment and the Oregon housing project?

As an illustration of the implied though not specifically stated need for research which is already being met to some extent in our Purnell

program, I am taking the liberty of quoting one sentence from the report of the Housing and Management subcommittee of Section III, Family and Parent Education. In this report housing standards are set up and in the standards for the kitchen this statement is made. "Working equipment should be so placed as to obviate overreaching and unnecessary stooping. The height of the working surfaces should be adjusted to the individual worker." Are we yet in position to say what height of working surface is the least fatiguing to a woman of any given height? Several years ago a hue and cry was raised about the height of the kitchen sink. It was set too low and was backbreaking. Now sinks are generally set higher, but how about the comfort of the very short woman? Is she not as badly off as the tall women who first entered the complaint? Specifications for heights of working surfaces for graded heights of workers are necessary. Provisions for a beginning along this line are being made in the kitchen arrangement and equipment project at the North Dakota Station, and as the first step the college plumber has provided, by the simple means of strong rubber hose and an automobile jack, an adjustable sink which is to be tried out at different heights for different subjects--the results to be measured partly by subjective means and also, it is hoped, by energy consumption studies. In this connection the new project at the Washington Station on the human energy cost of various household tasks might also be mentioned.

Perhaps I had better go no further in attempting to connect research suggestions found in the committee report with existing projects, for I do not wish to convey the impression that we have a project to match every suggestion. There are many recommendations which will serve to give new direction to existing projects, with emphasis on the child as the center of interest.

In various time studies recently completed but little emphasis was given to the possible contributions of the children in lightening the home maker's load. One suggestion for research deals with this problem. The need is pointed out of studies of the choice of tasks, the hours of work, the standards which should be required, and the character of supervision of children's tasks in the home. Then there are recommendations for research in the subject-matter group which has only just been recognized by a separate designation in the organization of the American Home Economics Association--that of family relationships. I doubt if any existing Purnell project comes strictly under this head, and yet at the present time research in this field is particularly urgent.

I do not know how many research subjects will be discussed in the coming program or in what form they will be made available later. The sections with which home economics is chiefly concerned, at least with respect to research, are Section I on Medical Service, with its emphasis on nutrition and Section II, on Education and Training with its emphasis on family relationships, family economics, and housing. I am sure that during the meetings and group discussions in these sections many suggestions will be made which can be incorporated in a research program.

The interest of the whole country is aroused in the White House Conference. The radio will carry its message in a nationwide hook-up. Research programs based upon it will need no introduction in the state provided they can be put across before interest in the movement has abated. Surely the time is opportune for seeking more financial support for home economics research.

Going back to the special responsibilities of those heads of home

economics divisions who are directing research, I would like to call to your attention in closing a paper on Administrative Responsibilities in the Functioning of Research which Dr. Allen presented at a meeting of the experiment station section two years ago 1/.

With due regard to the higher responsibilities of the station directors in the administration of the research in which you have a share, in that to them home economics is only one of the many interests which must be kept in proper perspective in their research programs as a whole, I feel that many of the points emphasized by Dr. Allen in this paper apply equally well to this group. The administrative responsibilities connected with the functioning of research were classified by Dr. Allen as the responsibilities for the staff as a working body, for the character of the individual projects as accepted, and for the research program as a whole. Referring at this time only to what he considered the responsibility of the director toward the research program. I would like to quote two paragraphs from his paper.

"The development of such a working plan naturally is a selective process, and here again the administrative function finds an important place. Others may suggest but the director decides— is the check on relative importance, conformity to a general plan, and the type of effort needed to meet the situation. This will eliminate scattered and disconnected efforts, with failure to follow through. It will secure for research projects a more definite and better correlation with respect to what has been done and to common ends sought."

and finally, again referring to the station director, but also applicable to any director of research,

1/ E. W. Allen. Administrative responsibilities in the functioning of research. Proc. Assoc. Land-Grant Colleges and Universities, 1927, pp. 196-199.

"He will rarely function as a specialist, but rather as an organizer having a broad grasp and sympathies, intimately acquainted with the general principles and essentials which pertain to all research. He will exercise his authority to see that plans are properly made and properly considered; he will leave the details of execution to the specialists, but he will expect to know whether or not the projects are being properly carried out. These things he can do without limiting individual initiative and responsibility, or losing the confidence and support of the staff."